

## ABSTRACT

An optical subscriber network system is disclosed, which comprises: a server bi-directional optical transmitter including a multiplexer to multiplexes communication data and broadcast data, a server laser diode to converts the multiplexed data into an optical  
5 signal, and a server photo diode receive communication data from a subscriber, wherein the server bi-directional optical transmitter transmits the upstream communication data; and a subscriber bi-directional optical receiver including a subscriber laser diode to transmit upstream communication data, a subscriber photo diode to receive the optical signal transmitted from the server bi-directional optical transmitter, and a demultiplexer to  
10 demultiplex and divide the multiplexed signal into communication data and broadcast data. In the optical subscriber network system, the optical transmitter and the optical receiver can transceive image signals and Ethernet communication signals in a two-way direction by means of a single laser diode and photo diode.